Claims

What is claimed is:

1.   A method of generating a defect error log for a disc drive comprising steps of:

    (a)   identifying defective sector addresses of defective sectors on the disc, wherein at least two defective sectors are adjacent to each other in a circumferential direction or in a radial direction or in both directions;

    (b)   converting the sector addresses of adjacent defective sectors into a single defect error entry; and

    (c)   storing the defect error entry in the defect error log.

2.   The method of claim 1 further comprising:

    (d)   converting a sector address of a standalone defective sector into another defect error entry.

3.   The method of claim 1, wherein the converting step (b) comprises:

    (b)(i)   circumferentially padding addresses of a predetermined number of sectors to the defective sector address, wherein the predetermined number of sectors is circumferentially adjacent the defective sector;

    (b)(ii)   radially padding addresses of another predetermined number of sectors to the circumferentially padded sector addresses, wherein the predetermined number of sectors is radially adjacent the sectors of the circumferentially padded sector addresses such that both the padded sector addresses and the defective sector address are encoded into the defect error entry.

4.   The method of claim 3, wherein the defect error entry includes information about at least a length of circumferentially padded sector addresses, a length of radially padded track addresses, a beginning sector address of the circumferentially padded sector addresses, and a beginning address of the radially padded track addresses.

5.   The method of claim 2, wherein the converting step (d) comprises:

(d)(i)   circumferentially padding a predetermined number of sector addresses of the sectors that are circumferentially adjacent the defective sector to the defective sector address, wherein both the padded sector addresses and the defective sector address are converted into the defect error entry.

6.   The method of claim 5, wherein the defect error entry includes information about at least a length of circumferentially padded sector addresses, a length of radially padded track addresses, a beginning sector address of the circumferentially padded sector addresses, and a beginning address of the radially padded track addresses.

7.   A computer-readable media readable by a computer and encoding instructions for executing the method recited in claim 1.

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8.   A method of generating sector addresses from a defect error entry stored in a defect error log on a disc in a disc drive, the defect error entry containing information about a defective sector address and padded sector addresses, the method comprising:

(a)   obtaining a defect error entry in the defect error log; and

(b)   determining all sector addresses encoded in the defect error entry based on the information contained in the defect error entry wherein the information includes at least a length of circumferentially padded sector addresses, a length of radially padded track addresses, a beginning sector address of the circumferentially padded sector addresses, and a beginning address of the radially padded track addresses.

9.   A computer-readable media readable by a computer and encoding instructions for executing the method recited in claim 8.

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10.   A system for generating a defect error log on a disc in a disc drive comprising:

a disc drive controller;

a defective sector address identifying module, operably connected to the controller, that identifies all defective sectors on the disc, wherein at least two defective sectors are adjacent to each other circumferentially or radially or in both directions; and

an conversion module, operably connected to the controller, that converts at least two sector addresses of adjacent defective sectors into a defect error entry and stores the defect error entry in the defect error log.

11.   The system according to claim 10, wherein the conversion module further converts a sector address of a standalone defective sector into another defect error entry.

12.   The system of claim 10, wherein the conversion module circumferentially pads addresses of a predetermined number of sectors to the defective sector address, wherein the predetermined number of sectors is circumferentially adjacent the defective sector.

13.   The system of claim 12, wherein the conversion module radially pads addresses of another predetermined number of sectors to the circumferentially padded sector addresses, wherein the predetermined number of sectors is radially adjacent the sectors of the circumferentially padded sector addresses such that both the padded sector addresses and the defective sector address are encoded into the defect error entry.

14.   The method of claim 13, wherein the defect error entry includes information about at least a length of circumferentially padded sector addresses, a length of radially padded track addresses, a beginning sector address of the circumferentially padded sector addresses, and a beginning address of the radially padded track addresses.

15.   The method of claim 11, wherein the conversion module circumferentially pads a predetermined number of sector addresses of the sectors that are circumferentially adjacent

the defective sector to the defective sector address, wherein both the padded sector addresses and the defective sector address are converted into the defect error entry.

16.   The method of claim 15, wherein the defect error entry includes information about at least a length of circumferentially padded sector addresses, a length of radially padded track addresses, a beginning sector address of the circumferentially padded sector addresses, and a beginning address of the radially padded track addresses.

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17.   A system for generating sector addresses from a defect error entry stored in a
defect error log on a disc in a disc drive, wherein the defect error entry contains
information about a defective sector address and padded sector addresses, the system
comprising:

5   a disc drive controller; and

                an expansion module, operably connected to the controller, that obtains a
defect error entry in the defect error log and that determines all sector addresses
encoded in the defect error entry based on the information contained in the defect
error entry wherein the information includes one or more of a length of a
10   circumferentially padded sector address, a length of a radially padded track
address, a beginning sector address of the circumferentially padded sector address,
and a beginning address of the radially padded track address.

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18.   A system for generating a defect error log on a disc in a disc drive comprising:

        a disc drive controller; and

        means for converting at least two sector addresses of adjacent defective

sectors into a defect error entry and stores the defect error entry in the defect error

log.

19.   The system of claim 18 further comprising:

        means for identifying all defective sectors on the disc, wherein at least two

defective sectors are adjacent to each other circumferentially or radially or in both

directions.

20.   The system according to claim 19, wherein the means for converting further

converts a sector address of a standalone defective sector into another defect error entry.

21.   The system of claim 19, wherein the means for converting circumferentially pads

addresses of a predetermined number of sectors to the defective sector address, wherein

the predetermined number of sectors is circumferentially adjacent the defective sector.

22.   The system of claim 21, wherein the means for converting radially pads addresses

of another predetermined number of sectors to the circumferentially padded sector

addresses, wherein the predetermined number of sectors is radially adjacent the sectors of

the circumferentially padded sector addresses such that both the padded sector addresses

and the defective sector address are encoded into the defect error entry.

23.   The method of claim 22, wherein the defect error entry includes information about

at least a length of circumferentially padded sector addresses, a length of radially padded

track addresses, a beginning sector address of the circumferentially padded sector

addresses, and a beginning address of the radially padded track addresses.